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INFECTION CONTROL RISK ASSESSMENTS (ICRA)

FOR DEMOLITION, RENOVATION, OR NEW CONSTRUCTION PROJECTS

1. Purpose. To control airborne and waterborne biological contaminants in occupied patient care areas during periods of demolition and renovation and new construction projects.

2. Authority.

a. Joint Commission HAS/SAC, latest edition.

b. Association for Professionals in Infection Control and Epidemiology, Inc. (APIC).

c. American Institute of Architects (AIA), Guidelines for Design and Construction of Hospital and Health Care Facilities, AIA, Washington, D.C. 2001.

3. Policy.

a. ICRAs shall be a part of integrated facility planning, design, construction and commissioning activities and will be conducted during the early planning phase of a project, before construction begins, and continue through project construction and commissioning.

b. A multidisciplinary team that includes Infection Control, Clinical Staff (having knowledge of the clinical use of the relevant areas), and Facilities Management will conduct a proactive ICRA during the design and planning phase for all demolition, renovation, and new construction projects. The scope of the project may require other subject matter experts to be involved.

c. ICRAs will focus on prevention, but will also address monitoring, testing, and intervention when problems are identified.

4. Responsibilities.

a. Hospital/Clinic Commander will:

(1) Appoint a multidisciplinary team that includes Infection Control, Clinical Staff, and Facilities Management to ensure precautions are in place and strictly enforced whenever construction, renovation, or demolition activities are performed in occupied areas within the Military Treatment Facility.

(2) Approve/disapprove Infection Controls recommendations for moving patients to another area of the facility that is not affected by construction.

b. Facilities Manager will:

(1) Identify at-risk construction, renovation, and demolition activities.

(2) Coordinate Class II and higher construction, renovation, and demolition projects with Infection Control, Clinical Staff, Safety, Fire Marshal, Security, Housekeeping, Emergency Management, Medical Maintenance, Communications, and the contracting officer’s representative (COR)/contractor.

(3) Ensure contract documents require contractors to implement ICRA requirements during construction by including the following, or similar language in all contracts: “INFECTION CONTROL SHALL APPROVE PROJECTS INVOLVING MANIPULATION OF CEILING TILES, PERFORMANCE OF DUST GENERATING ACTIVITIES, MANIPULATION OF HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS, PLUMBING, AND/OR OTHER MAINTENANCE REPAIRS PRIOR TO THE INITIATION OF THE PROJECT.”

(4) Initiate an ICRA in the design and planning phase for each construction project.

(5) Routinely monitor construction for contractor compliance with the ICRA.

(6) Inspect construction areas after final cleaning and approve opening/reopening of the area.

(7) Verify that construction personnel receive orientation and training in the infection prevention and control measures identified on the ICRA prior to start of work.

c. Chief, Information Management Division will:

(1) Notify the Facilities Manager of any planned work and obtain approval prior to the start of work.

(2) Follow approved ICRAs to minimize the generation of dusts.

(3) Ensure work areas are properly cleaned up after work is completed.

d. Infection Control Officer will:

(1) Identify high-risk patient populations or areas in consultation with hospital staff.

(2) Determine whether construction poses sufficient increased risk to require/recommend that patients be moved to an area of the facility that is not affected by construction.

(3) Assist the Facilities Manager in preparing contractor expectations for infection control practices and criteria for emergency work interruptions.

(4) Educate staff about risks associated with potential exposure to microbial contamination, inorganic particulates, and volatile organic chemicals resulting from construction activities.

(5) Inspect construction areas after final cleaning and approve opening/reopening of the area.

(6) Conduct routine surveillance to identify nosocomial illness, initiate environmental and epidemiological investigations (including retrospective reviews) to identify and eliminate sources of infection if more than one case is found, alert clinicians caring for high-risk patients, and establish a system for prospective surveillance for additional cases.

e. Chief, Housekeeping will:

(1) Work with Infection Control to identify areas that need to be damp mopped/cleaned and clean these areas as scheduled.

(2) Thoroughly clean new and renovated areas before admitting or readmitting patients.

(3) Coordinate inspection of final cleaning with Infection Control and the Facilities Manager prior to opening/reopening the area.

f. Clinical Staff will:

(1) Work with Infection Control to identify high-risk patients/areas.

(2) Follow procedures in approved ICRAs during construction.

g. Industrial Hygiene will:

(1) Work with the Facilities Manger to develop and carry out indoor air quality and ventilation assessments as needed.

(2) Work with Infection Control and the Facilities Manger during environmental investigations.

(3) Recommend appropriate personal protective equipment to be worn by construction personnel.

h. Safety Manager will:

(1) Ensure that the safety committee periodically reviews the effectiveness of the ICRA during construction.

(2) Share relevant safety and health information with the risk manager and patient safety manager.

5. Procedures.

a. Conduct and document ICRAs by completing steps 1 through 6 below.

**Step 1. Use the following table to identify the type of construction.**

|  |  |
| --- | --- |
| Definitions of Construction Activities | |
| **Construction Type** | **Description** |
| ***A*** | Inspections and non-invasive activities. Includes, but is not limited to removal of ceiling tiles for visual inspection, limited to 1 tile per 50 square feet; painting with minimal dust production; installing wall covering; electrical trim and minor plumbing work; and activities that do not generate dust or require cutting of walls or access to ceilings other than for visual inspections. |
| ***B*** | Small-scale, short-duration activities that create minimal dust. Includes, but is not limited to installation of telephone and computer cabling, access to chase spaces, cutting of walls or ceiling where dust migration can be controlled. |
| ***C*** | Any work that generates a moderate to high-level amount of dust or requires demolition or removal of any fixed building components or assemblies. Includes, but is not limited to sanding of wall for painting or wall covering, removal of floor coverings, ceiling tiles and case work, new wall construction, minor duct or electrical work above ceilings, major cabling activities, and any activity that cannot be completed within a single work shift. |
| ***D*** | Major demolition and construction projects. Includes but is not limited to activities that require consecutive work shifts, require heavy demolition or removal of a complete ceiling system, and new construction. |

**Step 2. Use the following table to identify high-risk groups.**

|  |  |  |  |
| --- | --- | --- | --- |
| Infection Control Risk Assessment (Circle One) | | | |
| Low | **Medium** | **Medium-High** | **High** |
| * Office areas * Other: | * All patient care areas (unless stated in medium to high or high risk areas) * Other: | * Emergency Room * Radiology/MRI * Labor & Delivery * Nurseries * Pediatrics * Nuclear Medicine * Admission/Discharge Units * Physiotherapy (tank areas) * Dining Facility * Laboratories (specimens) * Special Procedures * Other: | * Transplant Patients * Operating Rooms * PACU * Sterile Processing Areas * All ICUs * Cardiac Catherization/ Angiography Area * Pulmonary Function * Dialysis Units * Endoscopic Areas * Pharmacy Mixture Areas * Oncology Units * Other: |

**Step 3. Use the following table to define risk.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risk Assessment Matrix** | | | | |
|  | **Construction Activity** | | | |
| **Risk Group** | ***A*** | ***B*** | ***C*** | ***D*** |
| ***Low*** | I | II | II | III/IV |
| ***Medium*** | I | II | III | IV |
| ***Medium-High*** | I | II | III/IV | IV |
| ***High*** | III | III/IV | III/IV | IV |

**Step 4. Complete the Infection Control Construction Permit.**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Infection Control Construction Permit | | | | | | | | |
| **Project Description/Number:** | | | | | | **Project Type:**  \_\_\_\_Maintenance \_\_\_\_Renovation \_\_\_\_Demolition \_\_\_\_Construction  \_\_\_\_Other: | | |
| **Estimated Start Date:** | | | | | | **Estimated Completion Date:** | | |
| **Facility Project Manger:** | | | | | | **Phone Number:** | | |
| **Project Contractor:** | | | | | | **Phone Number:** | | |
| **Infection Control Officer:** | | | | | | **Phone Number:** | | |
| **Location:** | | | | | | **Area Supervisor/Phone Number:** | | |
|  | | | | | | | | | |
| Construction Type: (Circle One)  ***A B C D*** | | | Risk Group: (Circle One)  ***Low Medium***  ***Medium-High High*** | | | | | Risk Assessment: (Circle One)  ***I II III III/IV IV*** | |
|  | | | | | | | | | |
| Projected Utility Outages Impacting Infection Control (Mark all that apply) | | | | | | | | | |
| Electrical | Potable Water | HVAC | | Medical Vacuum | Sewer | | Other: | | |
|  | | | | | | | | | |
| List All Construction Equipment that may Generate Noise, Vibration, and/or Interference with Medical Equipment (Electro Magnetic Interference) | | | | | | | | | |
|  | | | | | | | | | |

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| --- | --- |
| Prevention and Control Measures (Mark all that apply) | |
| Risk Assessment |  |
| *I* | \_\_ Use work practices that will minimize generation of dust from construction operations. \_\_ Immediately replace any ceiling tiles displaced for visual inspection. |
| *II* | \_\_ Provide means (e.g., fire-rated plastic sheeting) to prevent airborne dust fromdispersing into the atmosphere. \_\_ Water mist work surfaces to control dust while cutting.  \_\_ Seat unused doors with low tack.  \_\_ Block off and seal air vents.  \_\_ Wipe surfaces with disinfectant.  \_\_ Contain construction waste before transport in tightly covered containers.  \_\_ Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area.  \_\_ Place dust mat at work area entrances and exits.  \_\_ Isolate HVAC system in work area. |
| *III* | \_\_ Isolate HVAC system in work area. \_\_ Install fire-rated barriers or implement control cube method before construction begins.  \_\_ Maintain negative air pressure within work area, utilizing HEPA equipped air filtration  units.  \_\_ Keep barriers in tact until project is completed and area is thoroughly cleaned by  housekeeping.  \_\_ Vacuum work area with HEPA-filtered vacuums frequently.  \_\_ Wipe surfaces with disinfectant.  \_\_ Remove barriers carefully to minimize spreading dirt and debris associated with  construction.  \_\_ Contain construction waste before transport.  \_\_ Cover waste transport containers or carts, tape coverings if lids or covers are not tight. |
| *IV* | ­­\_\_ Isolate HVAC system in work area. \_\_ Install fire-rated barriers or implement control cube method before construction begins.  \_\_ Maintain negative air pressure within work area, utilizing HEPA equipped air filtration  units.  \_\_ Seal holes, pipes, conduits, and punctures appropriately.  \_\_ Construct anteroom and require all personnel to pass through this room so then can be  vacuumed with HEPA vacuum cleaner before leaving work area, or wear cloth or  paper coveralls that are removed each time they leave the work area.  \_\_ Require all personnel entering work area to wear shoe covers.  \_\_ Keep barriers in tact until project is complete and thoroughly cleaned by housekeeping.  \_\_ Vacuum work with HEPA-filtered vacuums daily or more frequently as needed.  \_\_ Wet mop adjacent areas with disinfectant daily or more frequently as needed.  \_\_ Remove barriers in a manner to minimize spreading dirt and debris associated with  construction.  \_\_ Contain construction waste before transport.  \_\_ Cover waste transport containers or carts, tape coverings if lids or covers are not tight. |
|  | |

| **Other Risk-Reduction Strategies** |
| --- |
| \_\_ Keep patient doors adjacent to the construction area closed.  ­­\_\_ Seal exterior windows to minimize infiltration from excavation debris.  \_\_ Designate alternate routes in the facility that detour staff, patients, and visitors around the construction site.  \_\_ Schedule major construction projects during winter months when risk of fungal infection is lowest.  \_\_ Designate a construction-only elevator, entrance, and walkway for construction crew.  \_\_ Remove construction debris through a window on floors above the ground level.  \_\_ Relocate high-risk patients to an area removed from the construction site.  \_\_ Post signage related to non-authorized entry into the work area.  \_\_ Designate storage areas for construction materials.  \_\_ Train and educate healthcare staff, facility workers, construction workers (Mark all that apply):  Infection Control Exposure Control Plans, Hazardous Chemicals, Life Safety, Accident Reporting,  First Aid, Personal Protective Equipment, Reporting unexpected environmental emergencies (e.g., lead  paint, asbestos, etc.)  \_\_ Other: |
|  |

**Step 5. Complete daily monitoring to ensure workers/contractors follow infection control guidelines and policies.**

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| --- | --- | --- | --- | --- | --- |
| Infection Control Checklist **During Construction/Renovation** | | | | | |
| Inspector: | | Location: | Date: | | Time: |
| **Barriers** | | | **Air Handling** | | |
|  | Construction signs posted | |  | All windows behind barrier closed | |
|  | Doors properly closed and sealed | |  | Negative air pressure at barrier entrance | |
|  | Holes, pipes, conduits, punctures, etc. sealed | |  | Portable air flow units used to maintain negative pressure running | |
|  | Dust barriers intact and sealed | |
|  | Floor and horizontal surfaces free of dust | | Trash and Debris | | |
|  | Ceiling tiles free of moisture | |  | No visible evidence of insects (flies) | |
| **Traffic Control** | | |  | Trash placed in appropriate containers | |
|  | All doors and exits free of debris | |  | Routine cleaning performed in work area | |
|  | Restricted to construction workers and essential staff | |  | “Sticky” dust mats appropriately placed/clean | |
|  | No evidence of dust outside the construction area | |
| **Personal Protective Equipment (PPE)** | | |  | Debris removed in covered container daily | |
|  | Workers wearing appropriate PPE | |  | Regulated medical waste containers removed from work area before work is started | |

**COMMENTS/ACTIONS TAKEN:**

**Step 6. Complete final infection control inspection upon completion of construction/renovation.**

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| --- | --- | --- | --- | --- | --- |
| **Infection Control Checklist**  **Final Upon Completion of Construction/Renovation** | | | | | |
| Inspector: | | Location: | Date: | | Time: |
| **Equipment** | | | | | |
|  | Soap dispensers properly installed and filled | |  | Towel dispensers properly installed and filled | |
|  | Sinks functional | |  | Sharps containers properly installed | |
| Housekeeping | | | | | |
|  | Waste and excess equipment/supplies removed | |  | Surfaces and floors dust free | |
| Ventilation | | | | | |
|  | Appropriate pressure relationships verified | |  | Air intake/exhaust vents free of protective coverings | |
|  | | | | | |

**COMMENTS/ACTIONS TAKEN:**

b. If a nosocomial infection occurs during construction, intensify surveillance to identify additional cases, searching both prospectively and retrospectively. If no evidence of ongoing transmission is discovered, continue with routine infection control measures. In the event more than one case is found, conduct environmental and epidemiological investigations to identify and eliminate the source of infection.

Submitted by Date

Approved by Date